Development and Application of a Numerical Simulation Model to Evaluate and Mitigate the Transport of Pesticides from the Sacramento River Watershed into the Bay–Delta Area

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Public Comments

No public comments were received for this proposal.

Collaboration Panel Review

Proposal Title

#0335: Development and Application of a Numerical Simulation Model to Evaluate and Mitigate the Transport of Pesticides from the Sacramento River Watershed into the Bay–Delta Area

Final Panel Rating
inadequate

Collaboration Panel (Primary) Review

Collaboration:

Will the results of the collaborative effort be greater than the sum of its parts? Is it clear why the subprojects are part of a larger collaborative proposal rather than several independent smaller ones?

inadequate
It is unclear how and to what degree collaboration will occur. The text (pages 5-7)does not describe how the deliberate collaboration is expected to occur.

Interdependence And Integration:

Does the proposal have an example that clearly articulates the conceptual model of each subproject and how they link together as a whole? Are the boundaries of the study plans focused and cohesive, yet well delineated? Is there a plan for potential differences in the stages of subproject completion times? Are there clear plans for analyses and interpretations which seek to identify and quantify relationships among the data collected in various subprojects rather than separate analyses for each subproject?

adequate
There is no conceptual model in the proposal that depicts the linkages of the various tasks. The intermediate model development tasks are delineated. No plans are presented that address unanticipated delays in the completion of tasks.

Project Management:

Is it clear who will be performing management tasks and administration of the project? Are there resources set aside for project management and time given for investigators to collaborate? Is there a process for making decisions during the course of the project? Are there acknowledgments of potential barriers to collaboration and explanations of how team members will overcome barriers particular to their institutions?

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inadequate
It is not evident who are the leaders of the individual tasks.
Eleven tasks are identified and personnel are assigne to these
tasks, but the respective roles and responsibilities of these
personnel are not designated. The time allocated in the Budget
form to the Lead Investigator for program administration is 4
hours per week, seemingly a very low total. There is no
address of processes to overcome barriers to collaboration
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Team Composition:

Does the lead principal investigator have successful management history and experience leading collaborative teams? Is it clear that all key personnel are committed to making significant contributions to the project? Do team members have complementary skills?

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inadequate
The Lead Investigator has had considerable experience in a
wide range of program management activities; the qualification
statement, however, does not identify the collaborative nature
of any of these assignements. The individual contributions
from the various participants are not identified in either the
Task form or Personnel form, or in the description of the
project tasks (pages 5-7) Key pesonnel appear to have the
necessary skills for the tasks to which they are assigned.
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Communication Of Results:

Is there a clear plan for comprehensive and cohesive reporting of project progress to the CALFED community?

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inadequate
A list of project deliverables is presented but does not
associate the deliverables per specific tasks. A Technical
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Adviospory Panel is identified but its role in the proposal process is not specified. There is a general description of potential venues that would be targeted to receive the communication of project results (pages 9-10), but no detailed plan.

Additional Comments:

Collaboration Panel (Discussion) Review

Primary reviewer rated the proposal inadequate because is was not clear how collaboration and project management was planned to occur. Secondary reviewer came to same conclusion. It was small details that brought it down, such as: lead PI does not include resume, technical advisory panel has more hours set aside for meetings than the PI has for meeting with the group.

Technical Synthesis Panel Review

Proposal Title

#0335: Development and Application of a Numerical Simulation Model to Evaluate and Mitigate the Transport of Pesticides from the Sacramento River Watershed into the Bay–Delta Area

Final Panel Rating
adequate

Technical Synthesis Panel (Primary) Review

TSP Primary Reviewer's Evaluation Summary And Rating:

This is a more applied project than some of those reviewed in this TSP. However, it is reviewed with this recognition. Goals and objectives are well described and it could be argued that it is not necesssry to demand hypotheses for this type of project. Eleven project tasks are outlined to describe the proposed actions in the project. I find it difficult to understand how much is needed in these tasks since it would appear that considerable background information should be available, such as the pesticide ranking and GIS analysis of critical habitat. With the extensive background in this area of the PIs it seems that they should have more definitive background conditions to lead to the project. Much of the proposed activities appear to be at an exploratory level rather than defined by known conditions. I find it difficult to distinguish the level of solid background and gaps of unknown information. It is stated that "The potential for project success is high given that many of the more difficult components of the study have been developed and tested". However, many of the proposed steps seem to be exploring these components.

Additional Comments:

When I am not familiar with the PIs of a proposal, I like to look over their CVs to better evaluate their qualifications. It appears that all of the minor participants for the project have resumes included in the proposal but that CVs from most of the principals (Azimi-Gaylon, Guo, Domagalski) are missing. This is unfortunate and it makes it more difficult to evaluate the proposal. While the evaluations of the external reviewers make a case for the proposal, I have reservations partially flavored by my unfamiliarity with the level of knowledge about pesticide use and contamination. I would think that the agencies involved would already have much of this information.

This is a more applied project than some of those reviewed in this TSP. However, it is reviewed with this recognition. Goals and objectives are well described and it could be argued that it is not necesssry to demand hypotheses for this type of project. Eleven project tasks are outlined to describe the proposed actions in the project. I find it difficult to understand how much is needed in these tasks since it would appear that considerable background information should be available, such as the pesticide ranking and GIS analysis of critical habitat. With the extensive background in this area of the PIs it seems that they should have more definitive background conditions to lead to the project. Much of the proposed activities appear to be at an exploratory level rather than defined by known conditions. I find it difficult to distinguish the level of solid background and gaps of unknown information. It is stated that "The potential for project success is high given that many of the more difficult components of the study have been developed and tested". However, many of the proposed steps seem to be exploring these components.

Technical Synthesis Panel (Discussion) Review

TSP Observations, Findings And Recommendations:

This proposal seeks to add to and upgrade an existing model that was initially funded by EPA. The existing model is a standard approach for estimating TMDLs from the EPA toolbox. EPA has decided not to fund the next stage of model development.

The panel supported the project's goals and felt they were relevant to CBDA's needs. The panel found it difficult to evaluate the backgrounds of the research team because the proposal lacked CV's for the lead PI. The two external reviews supported the proposal with ratings of "very good" and "excellent"; the panel felt that these reviews were substantiated with comments in the relevant sections. However, the panel felt there were several methodological gaps in the proposal. There is little description of how the models will be linked. In addition, the project is not likely to make a substantial contribution (beyond that of the existing model) to our understanding or management of pesticide contamination.

Rating: Adequate

Technical Review #1

proposal title: Development and Application of a Numerical Simulation Model to Evaluate and Mitigate the Transport of Pesticides from the Sacramento River Watershed into the Bay–Delta Area

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	The goals and objectives of this study are clearly stated. The proposal involves application of numerical models and is not hypothesis driven. Extensive justifications for the study are listed in the proposal. These include: 1) a CALFED record of decision calling for measures to separate drinking water intakes from sources of pollution; 2) a USEPA "Twenty Needs Report" calling for improved watershed and water quality modeling; 3) listed impairments to the Sacramento and Feather Rivers due to pesticides; and 4) a CVRWQCB requirement for Coalition Groups to develop a monitoring program to assess waste discharges from irrigated lands. In view of these justifications, the proposed work is timely and, potentially, important.
Rating	excellent

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full–scale implementation project justified?

Comments	The proposed study builds extensively on existing knowledge and products. These include an existing GIS

	inventory of pollutant sources and hydrologic properties, an existing watershed model, and an existing hydrodynamic model. Extensive model codes including "Pesticide Root Zone Model," "Rice Water Quality Model," and AgDrift are available for implementation. The full-scale implementation of this project is justified.
Rating	excellent

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	The approach is clearly thought out and feasible. The objectives of this study will likely be met. The approach is not novel. Rather, the approach is to implement existing technologies and build on previous accomplishments to provide a useful product.
Rating	very good

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	The approach is well documented. The authors appear to have "thought of everything." The project personnel include individuals who developed the models to be implemented (PRZM, RICEWQ) or are members of the firm associated with models to be implemented (EFDC, LSPC). Project personnel have extensive experience with pesticide modeling and previous experience applying pesticide models to the Delta region. The likelihood of success is high. My only reservation is the ability of EFDC to represent the transport and kinetics of

	`specific pesticides. In view of the intimate knowledge of the codes possessed by the investigators, any problems encountered are likely to be overcome.`
Rating	`very good`

Monitoring

If applicable, is monitoring appropriately designed (pre–post comparisons; treatment–control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	`No monitoring is proposed. The authors have demonstrated familiarity with existing data and have planned for its use in implementing the model.`
Rating	`very good`

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	`This study will produce two primary products. The first is a GIS-based tool that will identify pesticide sources, watershed characteristics, and areas of risk to salmonids and to drinking water. Due to the popularity of GIS systems, this will likely be a valuable, informative product. The second product is a coupled system of models capable of computing pesticide concentrations in receiving waters as a function of loading, watershed characteristics, and management strategies. This will be a valuable tool for watershed management but usage will likely be restricted to knowledgeable, experienced individuals. The investigators will conduct a training session in model usage. An easy-to-use graphical interface is an eventual goal but will not be provided as part of this project.`
Rating	

	excellent

Additional Comments

Comments

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	As noted previously, the principal investigators are intimately familiar with the models to be implemented and have prior experience with model application in the study area. In addition, a team of qualified advisors has been enlisted. No problems with resources or infrastructure are apparent. The project team should be fully capable of producing the proposed products.
Rating	excellent

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	Based on my own experience with leading similar projects, I believe the budget is reasonable. The investigators claim a benefit in excess of $300,000 for previous work that will be incorporated into this study. Certainly, the previous watershed and hydrodynamic modeling are of benefit to this project and are cost-free. Several of the advisors are contributing in-kind services to this project. The amount requested is very reasonable in view of the previous work and the contributed labor.
Rating	excellent

Overall

Provide a brief explanation of your summary rating.

Comments	This is a well-planned study with a high probability of delivering the promised results. The budget is reasonable. This is not a novel research investigation. Rather, existing technology will be employed to provide a useful management tool.
Rating	very good

Technical Review #2

proposal title: Development and Application of a Numerical Simulation Model to Evaluate and Mitigate the Transport of Pesticides from the Sacramento River Watershed into the Bay–Delta Area

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	The goals of this research were clearly stated throughout the application and remained consistent across the various lines of study incorporated in this research. Given shrinking Federal and state resources for environmental research, this project is critical to future decisions that will be as to where to target agricultural management practices for maximum economic and environmental benefit.
Rating	excellent

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full–scale implementation project justified?

Comments	The proposal did an excellent job of laying groundwork on what is currently known within the area of study, as well as critical data gaps still remaining. The conceptual model was clear, concise and easy to understand from a non-modeling perspective.
Rating	excellent

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	When successfully completed, this research will provide some of the most useful and novel information on management practices available to date. The approach is carefully and thoughtfully laid out in a systematic method allowing for maximum success. Results will be immediately useful not only in California, but across the United States. When successful, these approaches will likely be implemented by several action agencies.
Rating	excellent

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	According to the proposal, this project should be feasible within the time and economic frames given. The authors listed contain some of the foremost leaders in environmental science and modeling. Liklihood for success, given the assembled team and technical advisory panel is extremely high.
Rating	very good

Monitoring

If applicable, is monitoring appropriately designed (pre−post comparisons; treatment−control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	

	Monitoring data will be utilized from previoiusly collected Federal agencies to identify specific sources.
Rating	**very good**

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	**Successful products will be of great value and resource to farmers, landowners, and action agencies across the country.**
Rating	**excellent**

Additional Comments

Comments

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	**It is apparent from the list of authors that they are more than trained to successfully investigate this problem. Familiarity with working fields of some authors would indicate high probability of success, to be completed efficiently and effectively. Infrastructure is sufficient for support.**
Rating	**very good**

Budget

Is the budget reasonable and adequate for the work proposed?

#0335: Development and Application of a Numerical Simulation Model to Evaluat...

Comments	The budget seems appropriate, especially given the significant in-kind and previously funded research which contributes to the goals of this project.
Rating	excellent

Overall

Provide a brief explanation of your summary rating.

Comments	This proposal was well-prepared and easy to follow. The problem was established and the research goals designed to solve the problem were clear and calculated. It will address a significant problem in the current agriculture - environment struggle, especially given recent cuts in funding for both areas. This proposal will serve as a spring board for future work across the United States where focused managment practices will likely be the norm, not the exception.
Rating	excellent